

Appl. No. 10/815,164  
Response Dated November 28, 2005  
Reply to Office Action of August 26, 2005

**• • • R E M A R K S / A R G U M E N T S • • •**

The Office Action of August 26, 2005 has been thoroughly studied. Accordingly, the following comments are believed to be sufficient to place the application into condition for allowance.

Claims 1-17 are pending in this application.

Claims 1-6 stand rejected under 35 U.S.C. §102(b) as being anticipated by International Patent Publication No. WO 01/29136 to Nippon Mektron, Limited (Note: the Examiner is relying upon U.S. Patent No. 6,489,436 to Lin et al. as an English language equivalent to WO 01/29136).

Claims 7-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,290,909 to Chen et al. in view of Nippon Mektron, Limited (Lin et al.)

Claim 1 stands rejected under 35 U.S.C. §101 as claiming the same invention as claim 2 of Lin et al.

Claims 1-6 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 and 9 of Lin et al.

Claims 7-17 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2, 3 and 9 of Lin et al. in view of Chen et al.

For the reasons set forth below, it is submitted that all of the pending claims are allowable over the prior art of record and therefore, each of the outstanding rejections should properly be withdrawn.

Appl. No. 10/815,164  
Response Dated November 28, 2005  
Reply to Office Action of August 26, 2005

Favorable reconsideration by the Examiner is earnestly solicited.

The Examiner has relied upon Lin et al. as teaching:

...a polyimide copolymer made from the applicant's claimed mixture of anhydrides (A) and (B) and diamine (C) (abstract). The claimed molar ratios are used (col. 2 lines 14-21). Polyimides are applied to form films on metallic foils (examples). Flexible circuit boards are noted (col. 5 lines 1-10).

It is initially noted that the present application includes a common inventor with Lin et al. (and WO 01/29136) and is assigned to the same assignee (Nippon Mektron, Limited).

Moreover, WO 01/291136 is discussed on page 2 of applicants' specification as being prior art.

Accordingly, applicants are fully familiar with Lin et al. (and WO 01/29136).

The Examiner states that Lin et al. teaches a polyimide copolymer made from the applicant's claimed mixture of anhydrides (A) and (B) and diamine (C).

This statement is much broader than the teachings of Lin et al. and an improper (unsupported) interpretation of Lin et al.

Lin et al teaches a:

... polyimide copolymer, which is a copolymer of isopropylidene-bis-(4-phenyleneoxy-4-phthalic acid)dianhydride and 6-amino-2-(p-aminophenyl)benzimidazole or a copolymer of two kinds of tetracarboxylic acid dianhydrides consisting of isopropylidene-bis-(4-phenyleneoxy-4-phthalic acid)dianhydride and 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride and 6-amino-2-(p-aminophenyl)benzimidazole. (See Abstract)

Appl. No. 10/815,164  
Response Dated November 28, 2005  
Reply to Office Action of August 26, 2005

Applicants' independent claims 1, 7 and 17 require two kinds of tetracarboxylic acid dianhydrides consisting of (A) isopropylidenebis (4-phenyleneoxy-4-phthalic acid) dianhydride and (B) 3,3',4,4'-biphenyltetracarboxylic acid dianhydride.

The 3,3',4,4'-~~benzophenone~~tetracarboxylic acid dianhydride used by Lin et al. is not the same as the 3,3',4,4'-biphenyltetracarboxylic acid dianhydride used by applicants and required by each of the independent claims.

A careful review of Lin et al. will reveal that this reference completely fails to teach applicants' 3,3',4,4'-biphenyltetracarboxylic acid dianhydride.

Accordingly, Lin et al. does not anticipate applicants' claimed invention.

In rejecting claims 7-17 the Examiner as relied upon Chen et al. as disclosing:

...polyimide film compositions applied to metallic foil substrates comprising the reaction product of applicant's claimed components (B), (C), (D<sub>1</sub>), and (D<sub>2</sub>) (abstract; example 1). Examples show the applicant's claimed ratios of (C) to (D<sub>1</sub>) or (D<sub>2</sub>) (examples 1-2). The examples also teach the claimed method of applying a polyamic acid in a polar solvent, drying the film, and heating the film to form the polyimide. Flexible circuit boards are noted (col. 5 lines 17-25).

The Examiner concedes that Chen et al. fails to teach a mixture of dianhydrides.

The Examiner has accordingly relied upon Nippon Mektron (Lin et al.) as teaching "copolyimides, where mixtures of dianhydrides are used.

The Examiner specifically notes (in reference to Nippon Mektron) that:

Component (A) is used with component (B) to enhance solubility of the resulting polyimide (col. 2 lines 14-21; examples).

Appl. No. 10/815,164  
 Response Dated November 28, 2005  
 Reply to Office Action of August 26, 2005

In combining the teachings of Chen et al, and Nippon Mektron the Examiner has taken the position that:

...it would have been prima facie obvious to combine components (B) and (A) in the applicant's claimed ratios to provide a finished polyimide film with enhanced solubility.

At best, Chen et al. suggests a polyimide that is synthesized from components (B), (C), (D<sub>1</sub>) and (D<sub>2</sub>) and otherwise does not teach or suggest the use of applicants' component (A).

Applicants' have prepared a Comparative Example (5) on page 17 of their specification in which a laminate film was made from a polyimide that was synthesized from components (B), (C), (D<sub>1</sub>) and (D<sub>2</sub>).

As discussed, the laminate film in Comparative Example 5 initially showed a little curling, but after heat treatment showed a "pencil state" in which the film curled and shrunk into a bar-like form.

In contrast to Comparative Example 5, when applicants produced a laminate film of a polyimide that was synthesized from components (A), (B), (C), (D<sub>1</sub>) and (D<sub>2</sub>), the curling effect was overcome and eliminated.

The experimental data of these comparative examples factually establishes that the addition of component (A) produces unexpected results and improvements over the prior art.

Accordingly, the present invention cannot be considered obvious over the prior art under 35 U.S.C. §103.

Appl. No. 10/815,164  
Response Dated November 28, 2005  
Reply to Office Action of August 26, 2005

The double patenting rejections are believed to be in error inasmuch as Lin et al. claims 3,3',4,4'-benxophenonetetracarboxylic acid dianhydride rather than 3,3',4,4'-biphenyltetracarboxylic acid dianhydride.

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §102 as anticipating applicants' claimed invention.

Moreover, it is submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicants' claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejections of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejections of the claims and an early allowance of the claims is believed to be in order.


It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

Appl. No. 10/815,164  
Response Dated November 28, 2005  
Reply to Office Action of August 26, 2005

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved; the Examiner is invited to contact applicants' patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,

  
Michael S. Gzybowski  
Reg. No. 32,816

BUTZEL LONG  
350 South Main Street  
Suite 300  
Ann Arbor, Michigan 48104  
(734) 995-3110

139660.1